

**INTERPRETATIONS & APPLICATIONS
OF BUILDING CODES & REGULATIONS #98-12**



CODE SECTION : UBC Chapter 9

01/19/99

SUBJECT : SPRINKLER REQUIREMENTS

The City of Scottsdale requires that an automatic fire sprinkler system be installed in all new buildings. Existing buildings which do not have fire extinguishing systems must have a system installed if remodeling and/or additions to the building exceed 25 % (10 % in assembly occupancy buildings) of the valuation of the building prior to alterations. A fire extinguishing system is also required if the occupancy changes.

The Uniform Building Code allows certain code requirements to be relaxed when sprinkler systems, which are not otherwise required by the Code, are installed; such as area increases, increase in building height, or substitution for the general requirement for one-hour construction. Although an automatic fire sprinkler system is required by the City of Scottsdale amendments, these sprinkler advantages, where applicable, are still allowed.

Chapter 9 of the Uniform Building code lists many conditions which will require partial or complete fire sprinkler installations. Some advantages allowed for installing fire sprinklers may be applied only where the Uniform Building Code does not require sprinklers throughout the building.

To facilitate the review of building plans, the sprinkler advantages that are being used in the design of the building and the Building Code section must be listed on the plans cover sheet along with other building code data.

The City of Scottsdale requires a modified version of type NFPA 13R sprinkler system for residential uses (refer to City of Scottsdale Ordinance 3100, Uniform Fire Code Section 1003.2.9.1 and Section 1003.2.9.2.). Therefore the allowances granted for the installation of sprinkler systems in residential occupancies still apply; UBC Section 904.1.3 does not apply. Note that if an increase in area or height is taken, it may change the sprinkler requirements from UFC Section 1003.2.9.2. to Section 1003.2.9.1.

Sprinkler Advantages

Refer to Code section for complete text - other advantages may be listed in the Code.

Sprinklers permit the floor area of most buildings to be doubled in multi-story buildings, and tripled in single story buildings. 505.3

OR

Sprinklers permit an increase of one story in most buildings. 506.

OR

Sprinklers may substitute for one-hour construction in II One-hour, III One-hour, V One-hour buildings. 508.

Sprinklers may eliminate the requirement for **corridor wall and ceiling** fire resistive ratings within office spaces of less than 100 occupants. 1004.3.4.3.

Sprinklers eliminate the requirement for **areas of refuge** required by ADA.

Sprinklers permit the area between **draft stops** in attic spaces to increase from 3,000 to 9,000 sq. ft., and the horizontal spacing between stops to increase from 60 to 100 feet. 708.3.1.2.2

Sprinklers permit an increase from 25 to 50 percent in the allowable area and eliminate the limit on the maximum dimension of single-pane **plastic glazing** in exterior wall panels. 2603.5.3

Sprinklers permit **foam plastic** insulation to be used in exterior walls of one-story non-combustible buildings. 2602.5.2.1

Sprinklers eliminate the maximum **skylight area** within the curb requirements in some one story buildings. 2603.7.1

Sprinklers eliminate the four-foot minimum **skylight separation** between units. 2603.7.1

Sprinklers eliminate the maximum area limitation for **light diffusing systems**. 2603.8.1

Sprinklers permit increases in the percentages of separation between **plastic wall panels**. 2603.5

Sprinklers permit the use of **textile wall coverings** with Class I flame spread without the requirement to pass the UBC 8-2 Test. 805.1

Sprinklers increase the permitted **travel distance** from 200 to 250 feet. 1004.2.5.2.2

Sprinklers permit the **openings distribution** conditions described in 904.2.2

Sprinkler Advantages - Based on Occupancy

ASSEMBLY OCCUPANCIES

A water curtain may be used in place of a fire curtain in **proscenium arches**. 405.3.4

BUSINESS OCCUPANCIES

Sprinklers may permit the use of **time delay locking devices** on exit doors. (B, F, I-2, M, and R-1 congregate residences serving group care facilities only.) 1003.3.1.10

Sprinklers may eliminate the requirement for **corridor wall and ceiling** fire resistive ratings within office spaces of non-combustible, fire-rated buildings. 1004.3.4.3.

Sprinklers permit corridors to lead through enclosed **elevator lobbies** along corridors provided access to any one exit can be reached without passing through the enclosed lobby. 1004.3.4.4.

Sprinklers eliminate the requirement that **street floor lobbies** in office buildings be separated from corridors. 1004.3.4.5.

A one-hour **shaft rating reduction** is permitted when sprinklers are installed within the shaft and at alternate floor levels. (High rise only.) 403.2.2

EDUCATIONAL OCCUPANCIES

Sprinklers increase the permitted **travel distance** from 150 to 225 feet. 1007.3.3.2.

Sprinklers increase the permitted **travel distance** within a room from 75 to 110 feet. 1007.3.3.1.

FACTORY OCCUPANCIES

Sprinklers increase travel distance from 300 to 400 feet when used with smoke and heat ventilation. 1004.2.5.2.5

INSTITUTIONAL OCCUPANCIES

Sprinklers eliminate the requirement that street floor lobbies be separated. 1005.2.3.

Sprinklers may permit the use of **time delay locking devices** on exit doors. (B, F, I-2, M, and R-1 congregate residences serving group care facilities only.) 1003.3.1.10

RESIDENTIAL OCCUPANCIES

Sprinklers may permit the use of **time delay locking devices** on exit doors. (B, F, I-2, M, and R-1 congregate residences serving group care facilities only.) 1003.3.1.10

STORAGE OCCUPANCIES

Sprinklers increase travel distance from 300 to 400 feet in open parking structures. 1004.2.5.2.4

Sprinklers increase travel distance from 300 to 400 feet when used with smoke and heat ventilation. 1004.2.5.2.5

Sprinklers permit the **stairway enclosures** of glazing in parking garages restricted to the storage of private or pleasure-type motor vehicles. 1005.3.3.2.3.